

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claims 1-4 have been cancelled, while new claims 8-10 have been added and claim additional features of the invention. In addition, the claims have been amended for clarity.

Applicant believes that the above changes answer the Examiner's 35 U.S.C. 112, paragraph 2, rejection of the claims, and respectfully request withdrawal thereof.

In the drawings, Fig. 2 has been amended to show that line 18, carrying the left rear signal, is applied to low-pass filter 25 via the line 38, and line 19, carrying the right rear signal, is applied to low-pass filter 26 via the line 39. This is supported in the specification on page 3, lines 24-27.

The Examiner has rejected claims 1-3 under 35 U.S.C. 102(a) as being anticipated by U.S. Patent 6,091,894 to Fujita et al. The Examiner has further rejected claims 1 and 4-7 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,122,382 to Iida et al.

The Fujita et al. patent discloses a virtual sound source positioning apparatus which generates a virtual sound source positionable at any desired location by the user. In particular, an input audio signal is processed to form a first control signal which is added to one audio channel of the input audio signal

forming a first composite signal, and a second control signal which is added to a second audio channel of the input audio signal forming a second composite signal. When these composite signals are reproduced by respective loudspeakers, the first and second control signals combine to form a virtual sound source at the desired position.

The Iida et al. patent discloses a system for processing audio surround signals, which takes a multi-channel audio signal, processes this audio signal and supplies resultant signals to left and right front speakers which additionally simulate missing left and right rear speakers.

In the subject invention, as claimed in claim 8, a multi-channel signal is processed and applied to left/right front and rear (surround) loudspeakers. In addition, left/right virtual sound signals are generated for application to the left/right front loudspeakers. The left/right virtual sound signals give the listener the impression that there are left/right virtual (lateral) loudspeakers in the area between 80 and 100 degrees with respect to the listener, in addition to the actual left/right front and rear loudspeakers. The purpose of these left/right virtual (lateral) loudspeakers being to simulate virtual room reflections/sources thereby simulating extra room effects, in addition to the surround effects supplied by the left/right rear loudspeakers.

Applicant submits that the prior art neither shows nor suggests generating left/right virtual lateral loudspeakers in a position of 80 to 100 degrees of a listener in a system already having front and rear (surround) loudspeakers. The virtual loudspeakers of the prior art merely replace the missing actual rear (surround) loudspeakers.

Further, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

As claimed in claim 8, the multi-channel sound system includes "left and right rear loudspeakers for reproducing sounds corresponding to said input left and right rear sound signals". This is neither shown nor suggested in either Fujita et al. or Iida et al.

In addition, as claimed in claim 8, the multi-channel sound system includes "generating means, coupled to receive said input left and right front and rear sound signals, for generating left and right virtual sound signals". However, in Fujita et al., as shown in Fig. 3, there is only a first channel signal L_{in} and a second channel signal R_{in} . Hence there is no disclosure of the generating means as claimed in claim 8. With respect to Iida et al., while a multi-channel signal is disclosed, this multi-channel


signal includes left and right front channels L and R, a center channel C and a surround channel S, i.e., there are no left and right rear channels rather a single surround channel.

Further, as claimed in claim 9, the generating means comprises "first combining means for combining said input left front sound signal with said input left rear sound signal; second combining means for combining said input right front sound signal with said input right rear sound signal; and a virtual filter coupled to said first and second combining means, said virtual filter forming said left and right virtual sound signals." While Iida et al. discloses a combining block 10a, this block 10a combines the left, right and center channels, there is no combining of left front/rear sound signals, right front/rear sound signals, and a virtual filter coupled to the two combining means for forming the left/right virtual sound signals.

In view of the above, Applicant believes that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, and as such, is patentable thereover.

Applicant believes that this application, containing claims 5-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by 
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By Natalie J. Mayo

ANNOTATED SHEET SHOWING CHANGES

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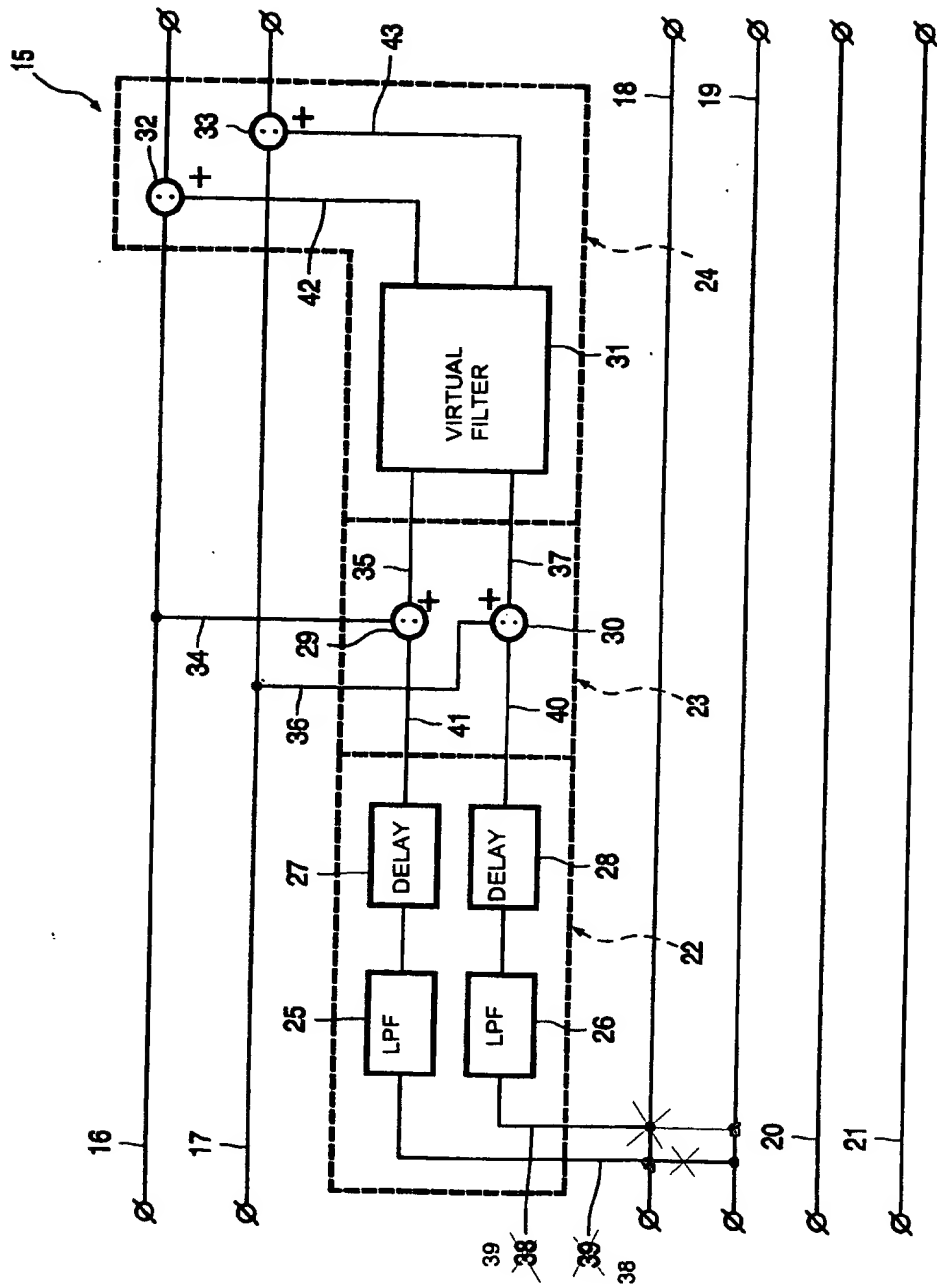


FIG. 2